	Application No.	Applicant(s)
Notice of Allowability	09/519,666	TAYLOR, RICHARD IAN
	Examiner	Art Unit
	Seyed Azarian	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *The fax inquiry filed 1/6/2005* .

2. ☒ The allowed claim(s) is/are *1-24*.

3. ☒ The drawings filed on *06 March 2000* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

     1. ☒ Certified copies of the priority documents have been received.

     2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

     3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the

        International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

     1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

     Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

2.   Authorization for this examiner's amendment was given in a telephone interview with

Applicants Attorney (Fritz Klantschi, Reg No. 50,333), on January 6, 2005, without traverse.

3.   The application has amended as follows:

In the claims

~~PROPOSED CLAIM~~ AMENDMENTS

Claim 1 (~~proposed~~ amendment): An apparatus for processing image data defining

a plurality of input images ~~of a changing scene recorded at different times from at least one of~~

~~different viewing positions and different viewing directions to generate data for defining a~~

~~sequence of images conveying an evolving representation of the scene from a fixed viewing~~

~~position and direction between the times at which the first and last input images were recorded;~~

~~the~~ <u>said</u> apparatus comprising:

an image registering unit, arranged to register the input images so that the

registered input images represent [[the]] <u>a</u> scene from [[the]] <u>a</u> same viewing position and

direction relative to the scene<u>, wherein the plurality of input images are of a changing scene</u>

<u>recorded at different times from at least one of different viewing positions and different viewing</u>

<u>directions</u>; and

a pixel value interpolator, arranged to interpolate between pixel values of

the registered input images to generate pixel values for interpolated images from the same

viewing position and direction relative to the scene for [[the]] <u>an</u> image sequence<u>, the image</u>

<u>sequence conveying an evolving representation of the scene from the same viewing position and</u>

<u>direction between the times at which the first and last input images were recorded</u>.

Claim 2 (previously presented): An apparatus according to claim 1, wherein said

image registering unit comprises:

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a transformation calculator, arranged to calculate transformations to

transform the input images; and

a transformation applicator, arranged to use the transformations calculated

by said transformation calculator to register the input images.

Claim 3 (~~previously~~ presented): An apparatus according to claim 2, wherein said

transformation calculator comprises a matching unit, arranged to match features in the input

images and a calculator, arranged to calculate the transformations on the basis of the matched

features.

Claim 4 (previously presented): An apparatus according to claim 2, wherein said

transformation calculator comprises an input-signal processor, arranged to process signals input

by a user defining matching features in the input images to calculate the transformations.

Claim 5 (previously presented): An apparatus according to claim 1, wherein said

pixel value interpolator is arranged to generate the pixel values for the interpolated images using

linear interpolation.

Claim 6 (previously presented): An apparatus according to claim 1, wherein said

pixel value interpolator is arranged to generate pixel values for interpolated images to be

displayed in the image sequence in which each input image is to be displayed a plurality of

consecutive times.

Claim 7 (previously presented): An apparatus according to claim 1, further

comprising an overlap detector, arranged to process input images registered by said image

registering unit to determine an area of overlap thereof, and wherein, said pixel value interpolator

is arranged to interpolate between the pixel values for pixels in the area of overlap only.

Claim 8 (proposed amendment): An image processing apparatus for generating

data for a time-lapse sequence of images of a changing scene from [[the]] a same viewing

position and direction relative to the changing scene, said apparatus comprising:

a transformation calculator, arranged to calculate transformations to

register input images, representing the changing scene recorded from at least one of different

viewing positions and different viewing directions so that the registered input images represent

the changing scene from the same viewing position and direction relative to the changing scene;

and

an image data generator, arranged to use the input images and the

calculated transformations to generate data for images of the scene from the same viewing

position and direction to be displayed in the sequence, the sequence conveying an evolving

representation of the changing scene from the same viewing position and direction between the

times at which the first and last input images were recorded.

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Claim 9 (~~proposed~~ amendment): A method of processing image data defining a plurality of input images ~~of a changing scene recorded at different times from at least one of~~ ~~different viewing positions and different viewing directions to generate data for defining a~~ ~~sequence of images conveying an evolving representation of the scene from a fixed viewing~~ ~~position and direction between times at which the first and last input images were recorded~~, said method comprising the steps of:

registering the input images so that the registered input images represent [[the]] a scene from [[the]] a same viewing position and direction relative to the scene, wherein the plurality of input images are of a changing scene recorded at different times from at least one of different viewing positions and different viewing directions; and

interpolating between pixel values of the registered input images to generate pixel values for interpolated images from the same viewing position and direction relative to the scene for [[the]] an image sequence, the image sequence conveying an evolving representation of the scene from the same viewing position and direction between the times at which the first and last input images were recorded.

Claim 10 (previously presented): A method according to claim 9, wherein said registering step comprises:

calculating transformations to transform the input images; and

using the transformations calculated in the transformation calculating step to register the input images.

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Attorney Docket No. 01263.001195.

Claim 11 (previously presented): A method according to claim 10, wherein, in
said transformation calculating step, features in the input images are matched and the
transformations are calculated on the basis of the matched features.

Claim 12 (previously presented): A method according to claim 10, wherein, in
said transformation calculating step, signals input by a user defining matching features in the
input images are processed to calculate the transformations.

Claim 13 (previously presented): A method according to claim 9, wherein, in said
interpolating step, the pixel values for the interpolated images are generated using linear
interpolation.

Claim 14 (previously presented): A method according to claim 9, wherein, in said
interpolating step, pixel values are generated for interpolated images to be displayed in an image
sequence in which each input image is to be displayed a plurality of consecutive times.

Claim 15 (previously presented): A method according to claim 9, further
comprising a step of processing registered input images to determine an area of overlap thereof,
and wherein, in said interpolating step, the pixel values for the interpolated images are generated
for the area of overlap only.

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Claim16 (previously presented): A method according to claim 9, further comprising a step of generating a signal conveying data from which the sequence of images can be generated.

Claim 17 (original): A method according to claim 16, wherein the signal comprises image data.

Claim 18 (previously presented): A method according to claim 16, further comprising a step of recording the signal either directly or indirectly.

Claim 19 (previously presented): A method according to claim 9, further comprising a step of displaying the sequence of images.

Claim 20 (~~proposed~~ amendment): An image processing method for generating data for a time-lapse sequence of images of a <u>changing</u> scene from [[the]] <u>a</u> same viewing position and direction relative to the <u>changing</u> scene, said method comprising the steps of:

calculating transformations to register input images<u>, representing the scene</u> recorded from at least one of different viewing positions and different viewing directions so that the registered input images represent the <u>changing</u> scene from the same viewing position and direction relative to the <u>changing</u> scene; and

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generating, using the input images and the calculated transformations, data

for images of the <u>changing</u> scene from the same viewing position and direction to be displayed in

the sequence<u>, the sequence conveying an evolving representation of the changing scene from the</u>

<u>same viewing position and direction between the times at which the first and last input images</u>

<u>were recorded</u>.

Claim 21 (previously presented): A storage device storing computer-useable

instructions for causing a programmable processing apparatus to become operable to perform a

method according to any one of claims 9 to 20.

Claim 22 (previously presented): A signal conveying computer-useable

instructions for causing a programmable processing apparatus to become operable to perform a

method according to any one of claims 9 to 20.

Claim 23 (~~proposed~~ amendment): An apparatus for processing image data

defining a plurality of input images ~~of a changing scene recorded at different times from at least~~

~~one of different viewing positions and different viewing directions to generate data for defining a~~

~~sequence of images conveying an evolving representation of the scene from a fixed viewing~~

~~position and direction between the times at which the first and last input images were recorded;~~

the <u>said</u> apparatus comprising:

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registration means for registering the input images so that the registered

input images represent [[the]] a scene from [[the]] a same viewing position and direction relative

to the scene, <u>wherein the plurality of input images are of a changing scene recorded at different</u>

<u>times from at least one of different viewing positions and different viewing directions</u>; and

interpolation means for interpolating between pixel values of the

registered input images to generate pixel values for interpolated images from the same viewing

position and direction relative to the scene for [[the]] an image sequence, <u>the image sequence</u>

<u>conveying an evolving representation of the changing scene from the same viewing position and</u>

<u>direction between the times at which the first and last input images were recorded</u>.

Claim 24 (~~proposed~~ amendment): An image processing apparatus for generating

data for a time-lapse sequence of images of a changing scene from [[the]] a same viewing

position and direction relative to the <u>changing</u> scene, <u>said apparatus</u> comprising:

transformation calculating means for calculating transformations to

register input images, <u>representing the changing scene</u> recorded from at least one of different

viewing positions and different viewing directions so that the registered input images represent

the <u>changing</u> scene from the same viewing position and direction relative to the <u>changing</u> scene;

and

generating means for generating data for images of the scene from the

same viewing position and direction to be displayed in the sequence using the input images and

the calculated transformations, <u>the sequence conveying an evolving representation of the</u>

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changing scene from a fixed viewing position and direction between the times at which the first

and last input images were recorded.

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REASONS FOR ALLOWANCE

4.   Applicant's arguments, filed 7/26/2004, see page 9 through page 16 of remarks, with

respect to claims 1-6, 8-14, 16-20, 21/9-14, 21/16-20, 22/9-14, 22/16-20 and 23-24 have been

fully considered and are persuasive. The rejection of 102(e) and 103(a) of claims 1-6, 8-14, 16-

20, 21/9-14, 21/16-20, 22/9-14, 22/16-20 and 23-24 has been withdrawn.

5.   Claims 1-24 are allowed.

6.   Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Contact Information

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The

examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta, can be reached at (703) 308-5246. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.
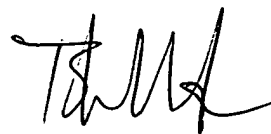
Information regarding the status of an application may be obtained from the Patent

Application information Retrieval (PAIR) system. Status information for published application

may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see http:// pair-direct.uspto.gov. Should you have

questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at

866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2625
January 9,2005

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